

Membangun Gateway Internet, Web Proxy, DHCP Server dan Firewall Dengan Routerboard Mikrotik RB-951

MATERI PAKET 2 UJIAN PRAKTIK KEJURUAN TKJ

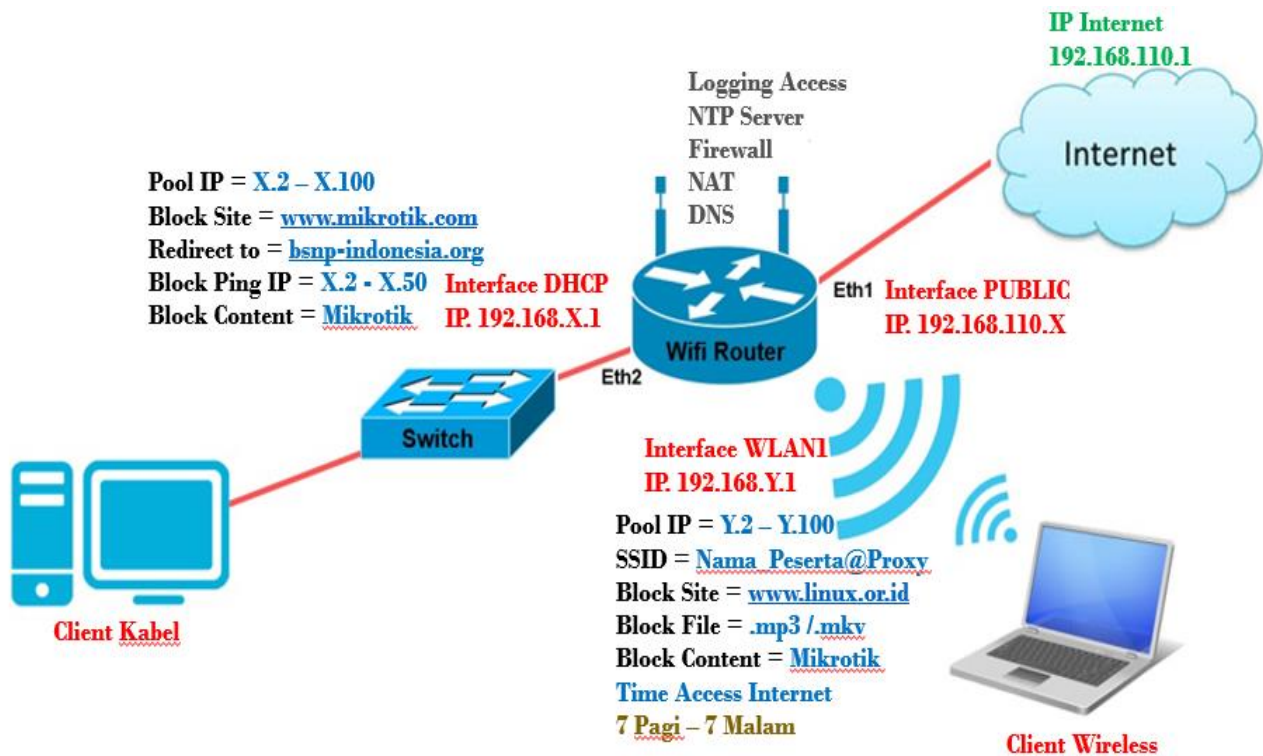
SMK Negeri 1 Empat Lawang

Tahun Pelajaran 2018/2019

Instruktur TKJ :

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NIP. 19860922201212 1 001



Topologi UKK – Paket 2 - 2019

SOAL/ TUGAS PAKET 3 UKK TKJ 2016/2017 :

Dalam kegiatan uji kompetensi ini anda bertindak sebagai Teknisi Jaringan. Tugas anda sebagai seorang Teknisi Jaringan adalah merancang bangun dan mengkonfigurasi sebuah *Wifi Router* berfungsi sebagai *Gateway Internet*, *Web Proxy*, *DHCP Server* dan *Firewall*, kemudian internet tersebut dishare ke *client* melalui jalur kabel dan wireless.

Dengan konfigurasi sebagai berikut:

Konfigurasi Wifi Router

1. Sistem operasi = Mikrotik RouterOS
2. DNS = Sesuai dengan DNS yang diberikan ISP
3. NTP = Yes
4. WebProxy = Yes
5. Cache Administrator = nama_peserta@sekolah.sch.id

Ether1:

6. IP Ether1 = Sesuai dengan *Network* yang diberikan ISP
7. Gateway = Sesuai dengan IP yang diberikan oleh ISP

Ether2:

8. Terhubung dengan kabel ke switch dan PC
9. IP Ether2 = 192.168.X.1/24
10. DHCP Pool = 192.168.X.2-192.168.X.100
11. Redirect Access = ketika akses ke <http://www.mikrotik.com> dialihkan ke website <http://bnsnp-indonesia.org>
12. Buat firewall agar IP 192.168.X.2-192.168.X.50 tidak dapat ping ke router
13. Buat *rule* agar setiap akses ke router tercatat di *logging*
14. Buat *rule filter* yang **mengijinkan** permintaan **HTTP** dan **HTTPS** dari **CLIENT network** ke **Internet**

WLAN 1 (WLAN Interface):

- 13. IP WLAN 1 = 192.168.Y.1/24
- 14. SSID = nama_peserta@Proxy
- 15. DHCP Pool = 192.168.Y.2-192.168.Y.100
- 16. Blocking Site = http://www.linux.or.id
- 17. Blocking File = .mp3, .mkv
- 18. Blocking Content = Block setiap konten yg mengandung kata “mikrotik”
- 19. Buat firewall yang memblokir akses internet melalui jalur wireless mulai pukul 19:00 (malam)– 07:00 (pagi).

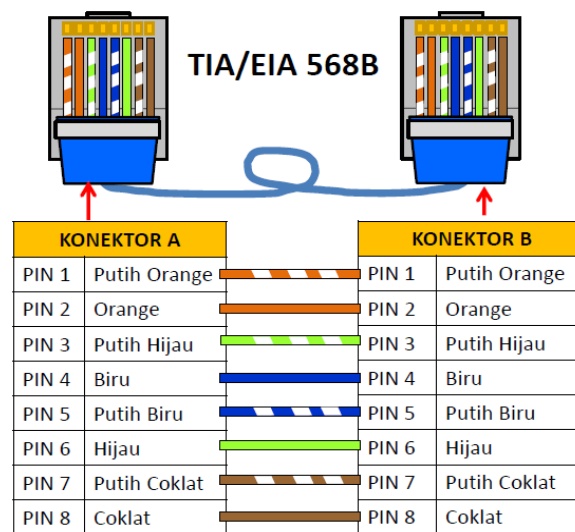
Ket : X → Merupakan daftar IP UKK yang ditetapkan

Y → IP UKK ditambah 1 cth. Ip ukk 15 ditambah 1, berarti Y = 16

B. ALAT DAN BAHAN

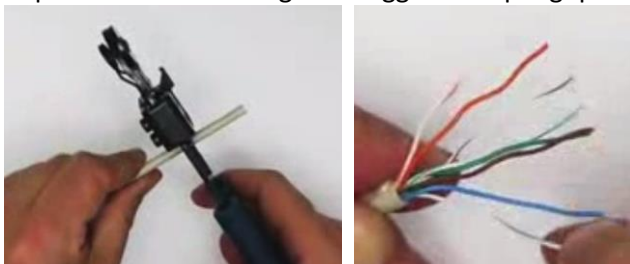
- 1. Mikrotik Router-Board 951 = 1 Buah
- 2. Switch 8 Port = 1 Buah
- 3. PC Client = 1 Buah
- 4. Kabel UTP = 10 Meter
- 5. Konektor RJ45 = 6 Buah
- 6. Tang Crimping = 1 Buah
- 7. Pengupas Kabel = 1 Buah
- 8. LAN Tester = 1 Buah

A. PEMBUATAN KABEL STRAIGHT



(Gambar 1. Susunan Kabel Straight)

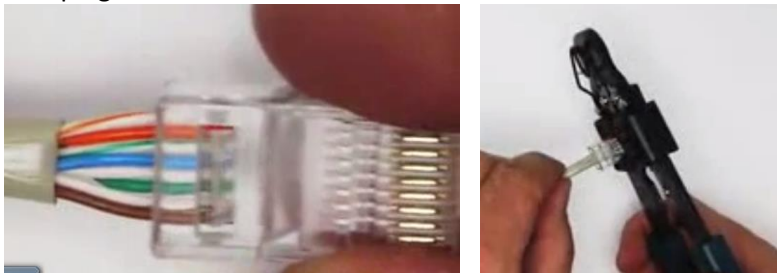
- 1. Persiapkan alat dan bahan yang dibutuhkan sesuai dengan daftar kebutuhan peralatan dan bahan
- 2. Kupas Isolasi kabel dengan menggunakan pengupas kabel di bagian ujung kabel



- Rapikan kabel yang telah dikupas dan urutkan warna kabel sesuai dengan standar TIA/EIA 568B (Lihat Gambar Susunan Kael Straight)
- Perkirakan ukuran panjang kabel dengan melihat kedalaman konektor, Selanjutnya potong kedua ujung kabel dengan menggunakan Tang Crimping.



- Masukkan kabel pada konektor RJ-45, kemudian kunci kabel dengan menggunakan Tang Crimping



- Uji sambungan kabel dengan menggunakan Tester

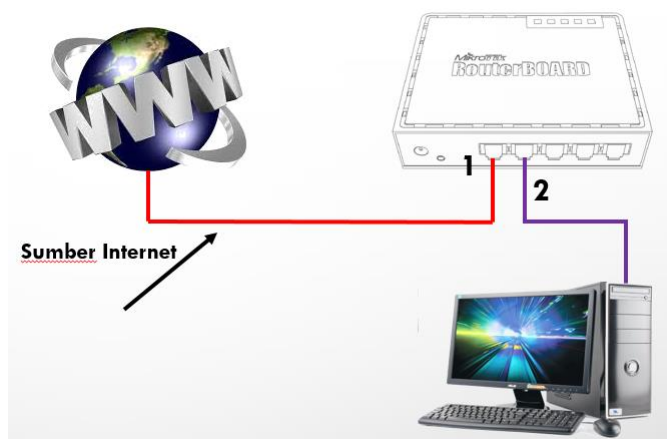


B. KONFIGURASI MIKROTIK RB-951 DENGAN WINBOX

Step 1.

Persiapan Topologi untuk Me- Remote Mikrotik

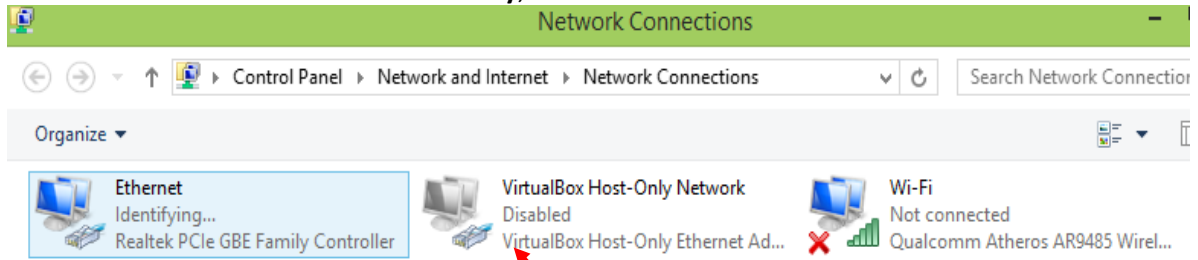
Menyambungkan Komputer ke Port 2, Kabel sumber internet ke Port 1 pada Mikrotik dengan menggunakan kabel straight seperti terlihat pada gambar dibawah ini :



Step 2.

Konfigurasi IP Address PC Client Secara Automatic

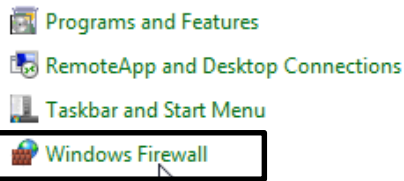
1. Menghidupkan Komputer
2. Memasang adaptor sumber listrik untuk router mikrotik
3. Mendisable Ethernet **Virtualbox Host Only**, klik kanan **Disable**



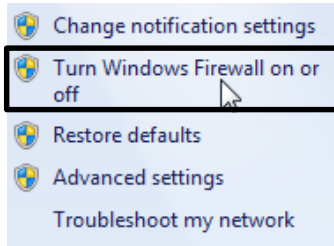
Step 3.

Matikan Windows Firewall

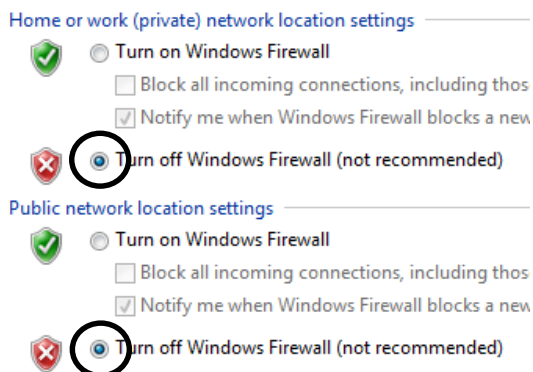
1. Klik **Start Windows** → **Control Panel** → **Windows Firewall**



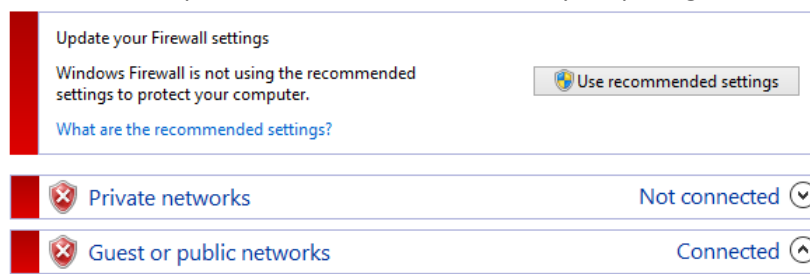
2. Pilih **Turn Windows Firewall on or off**



3. Matikan Seluruh Firewall seperti terlihat pada gambar dibawah



4. Klik tombol **OK** dan tutup **Control Panel**. Pastikan hasilnya seperti gambar dibawah.

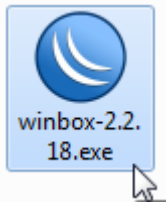


Step 4.

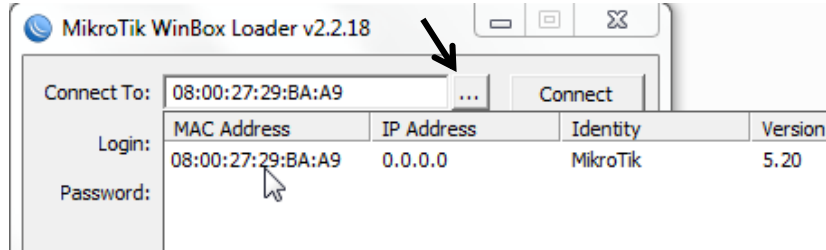
Melakukan Remote Mikrotik dengan Winbox

1. Koneksi ke Router Mikrotik dengan WinBox

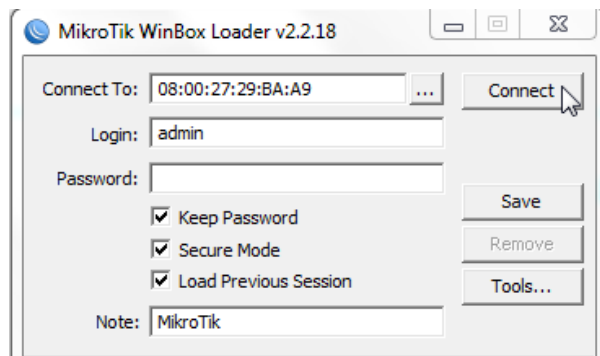
- a. Buka Aplikasi WinBox pada computer



- b. Pilih Mac Address

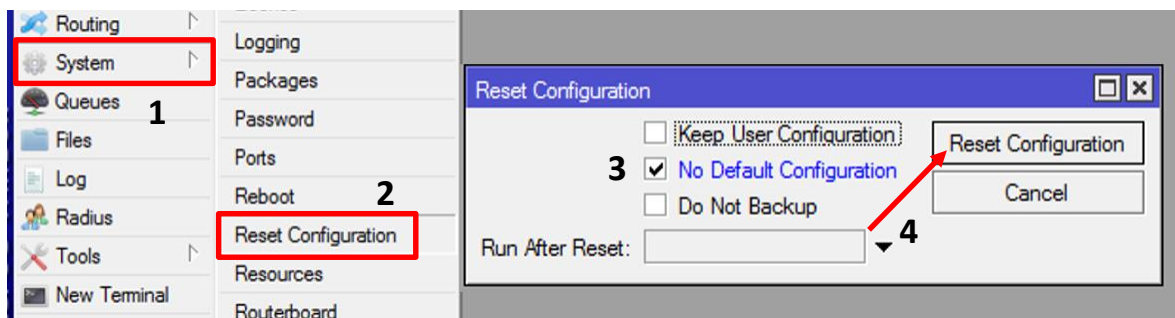


- c. Setelah selesai Click tombol **Connect**



- d. Menu konfigurasi Mikrotik akan terbuka

2. Lakukan **Reset Router** dan Pastikan **ter-Reset** dengan baik.



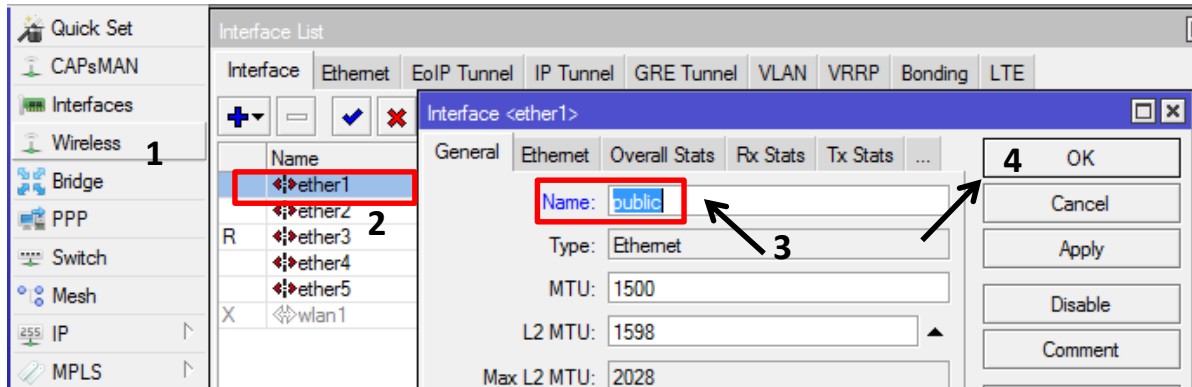
3. Aplikasi Winbox akan **terputus/disconnect**, ulangi lagi langkah a sampai c diatas untuk menghubungkan kembali router dengan aplikasi dan router siap untuk dikonfigurasi.

Step 5.

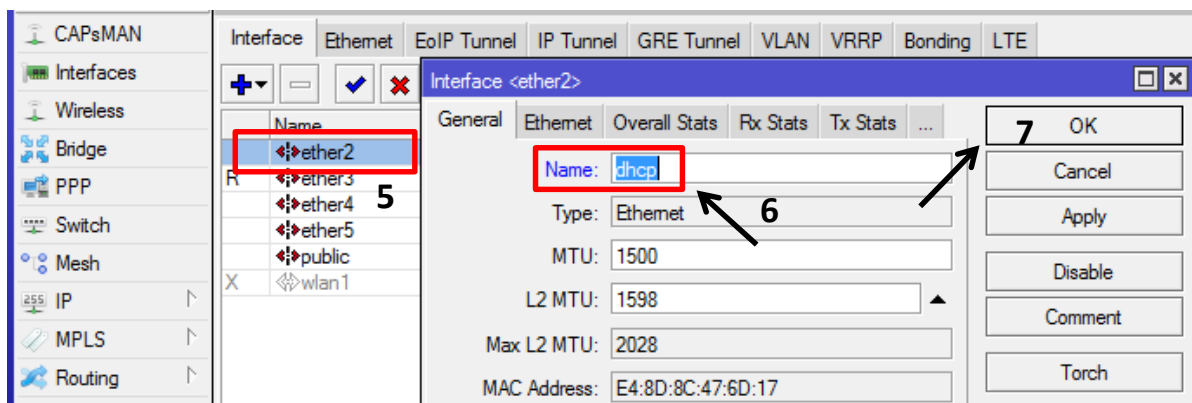
Melakukan Konfigurasi Mikrotik Sesuai Soal

1. Konfigurasi Name-Interface

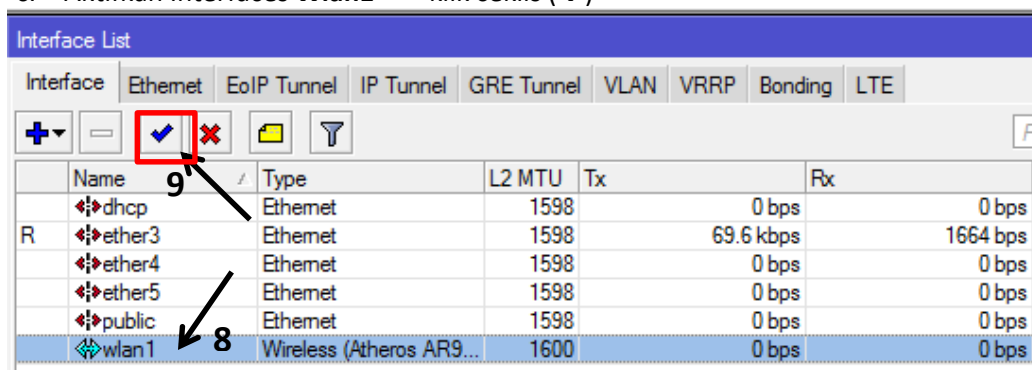
- a. Klik menu Interface --> Tanda tambah (+) / **add** --> Double klik interface **ether1** --> Ubah dengan nama "**public**" ---> Klik OK



- b. Lakukan hal yang sama pada interfaces ether2 --> ganti dengan nama "**dhcp**" --> Klik OK



- c. Aktifkan Interfaces **Wlan1** ---> klik ceklis (**v**)

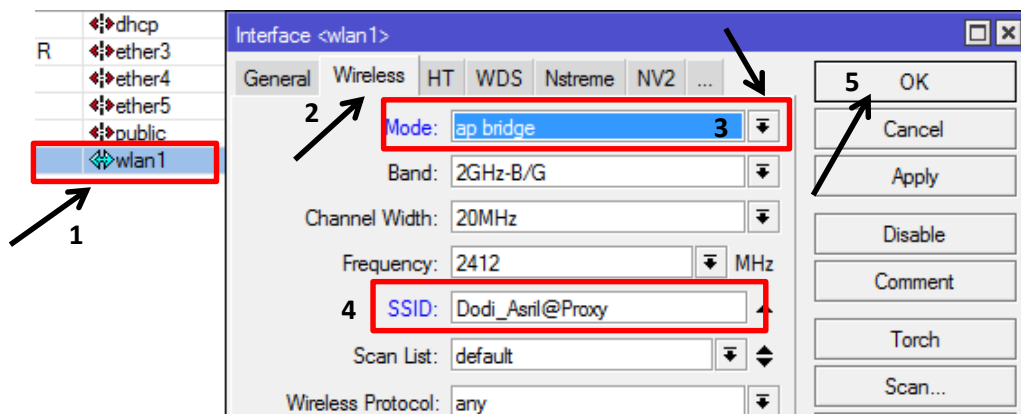


- d. Hasil konfigurasi name interface.

The screenshot shows the Mikrotik WinBox interface. The 'Interface List' panel shows a list of interfaces: dhcp, ether3, ether4, ether5, public, and wlan1. The 'dhcp' and 'wlan1' interfaces are highlighted with red boxes.

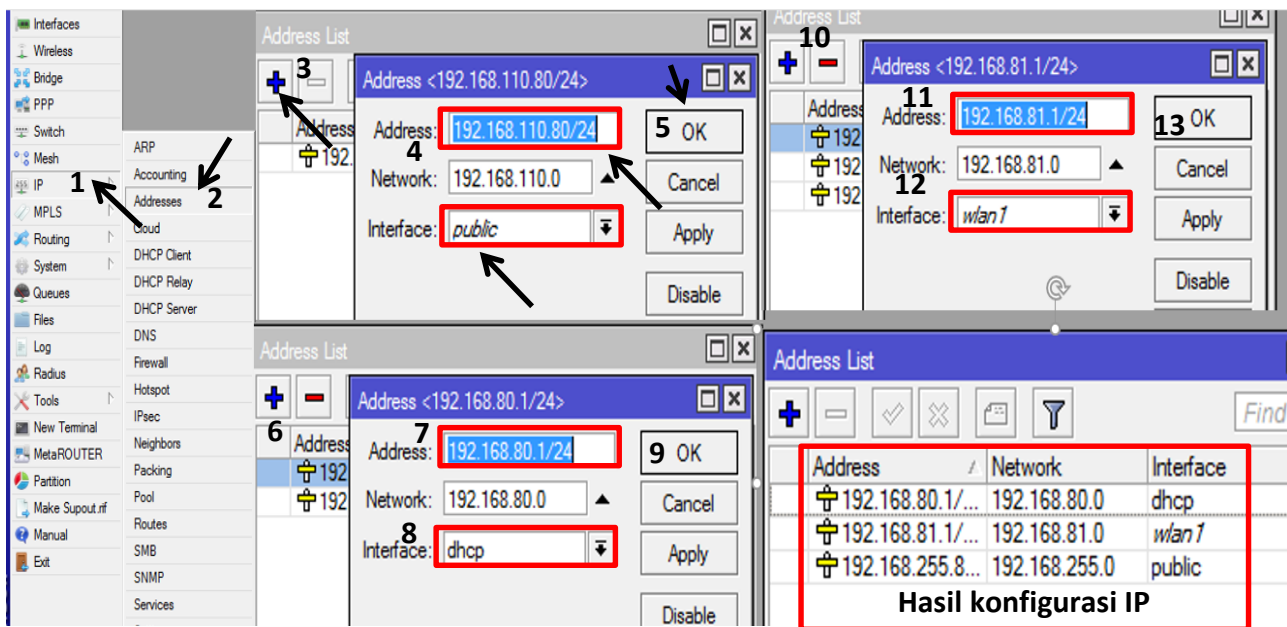
Interface	Name	Type	L2 MTU	Tx	Rx
R	dhcp	Ethernet	1598	0 bps	0 bps
R	ether3	Ethernet	1598	69.6 kbps	1664 bps
R	ether4	Ethernet	1598	0 bps	0 bps
R	ether5	Ethernet	1598	0 bps	0 bps
R	public	Ethernet	1598	0 bps	0 bps
R	wlan1	Wireless (Atheros AR9...)	1600	0 bps	0 bps

- e. Konfigurasi SSID, Double Klik interfaces **Wlan1** yang sudah diaktifkan ---> Klik **Mode** ---> pilih **ap bridge** ---> klik **SSID** ---> ganti dengan “**Dodi_Asril@Proxy**” (Nama_Siswa) ---> Klik **OK**

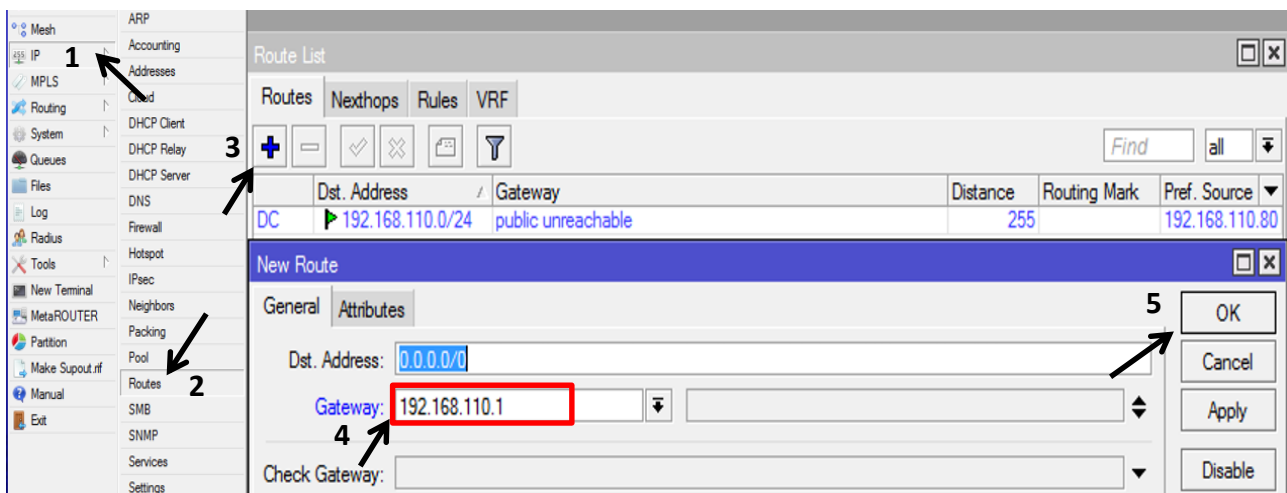


2. Lakukan Konfigurasi IP Address pada setiap Ethernet.

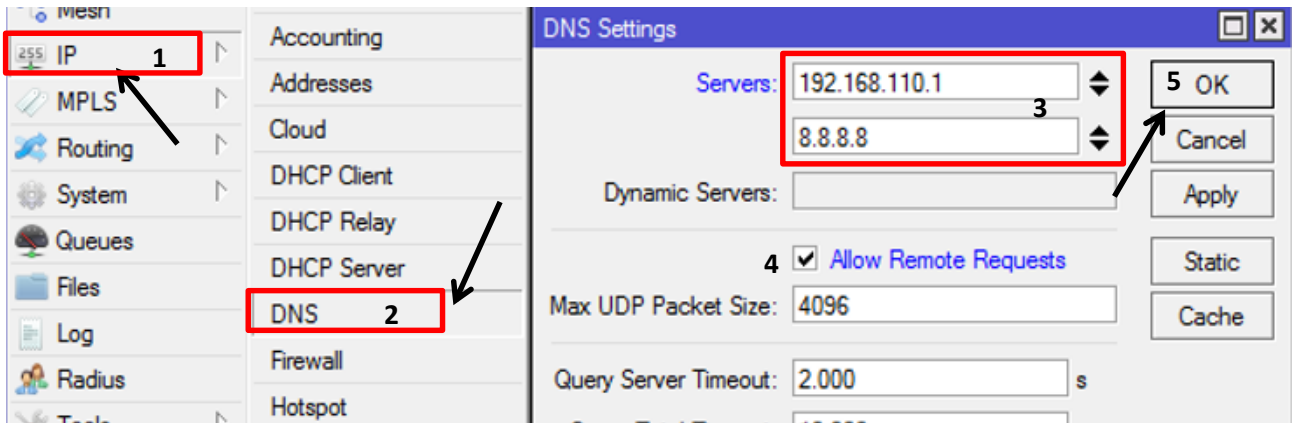
Klik pada Menu IP ---> **Address** ---> Isi IP sesuai dengan Interfacesnya.



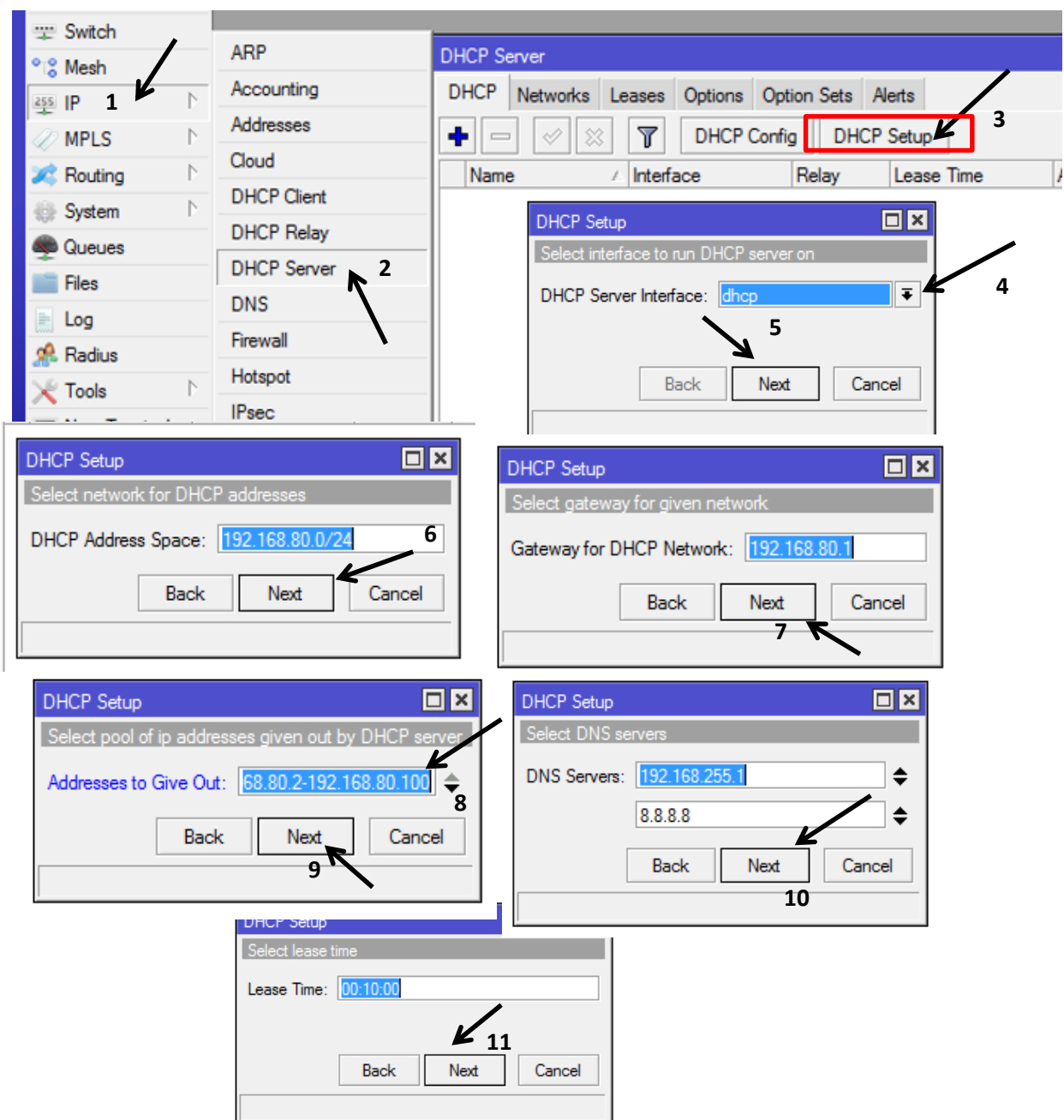
3. Lakukan Konfigurasi Routing, menu IP → Routes → (+) / add → IP Gateway = 192.168.110.1



4. Konfigurasi DNS, menu IP → DNS → 192.168.110.1,8.8.8.8



5. Konfigurasi DHCP Server Interface DHCP, buat range ip 2 - 100



Name	Interface	Relay	Lease Time	Address Pool	Add AR...
dhcp1	dhcp		00:10:00	dhcp_pool1	no

DHCP Server interfaces DHCP

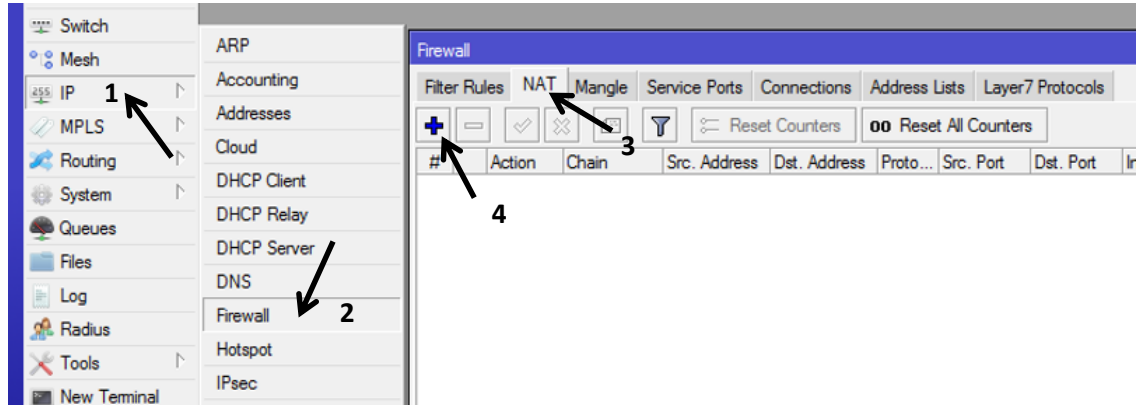
6. Konfigurasi DHCP Server Interface WLAN 1, buat range ip 2 - 100

Name	Interface	Relay	Lease Time	Address Pool
dhcp1	dhcp		00:10:00	dhcp_pool1
dhcp2	wlan1		00:10:00	dhcp_pool2

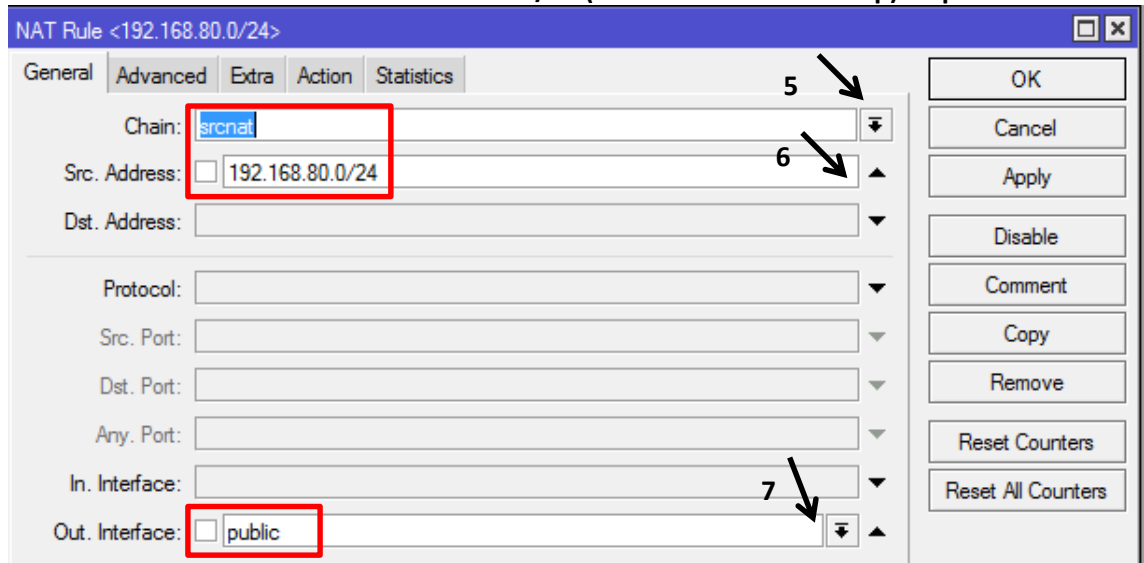
DHCP Server interfaces WLAN 1

7. Konfigurasi Firewall NAT Access Website

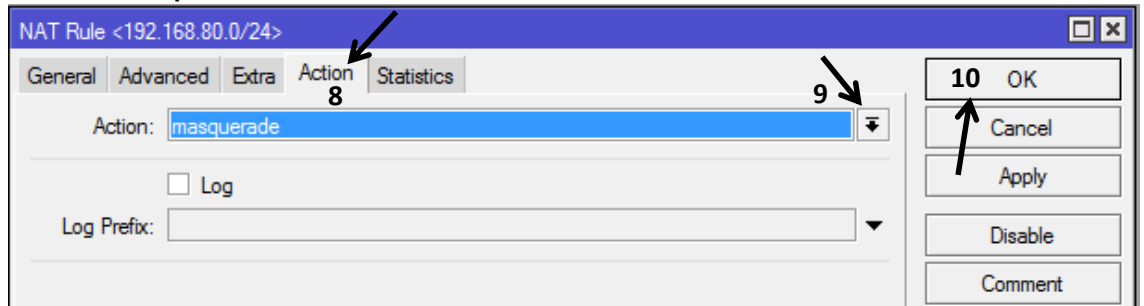
a. Akses NAT interface DHCP



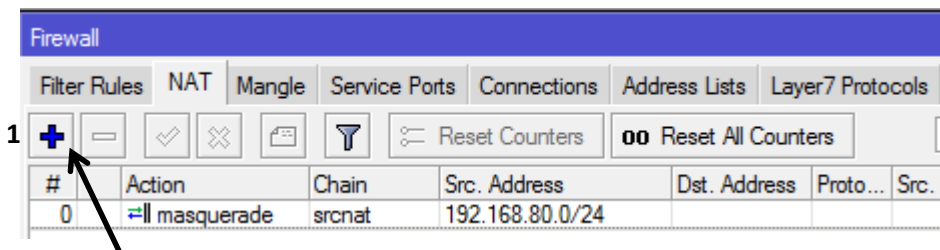
Chain = srcnat → Src.Address = 192.168.X.0/24 (network interfaces dhcp) → public



Action = masquerade

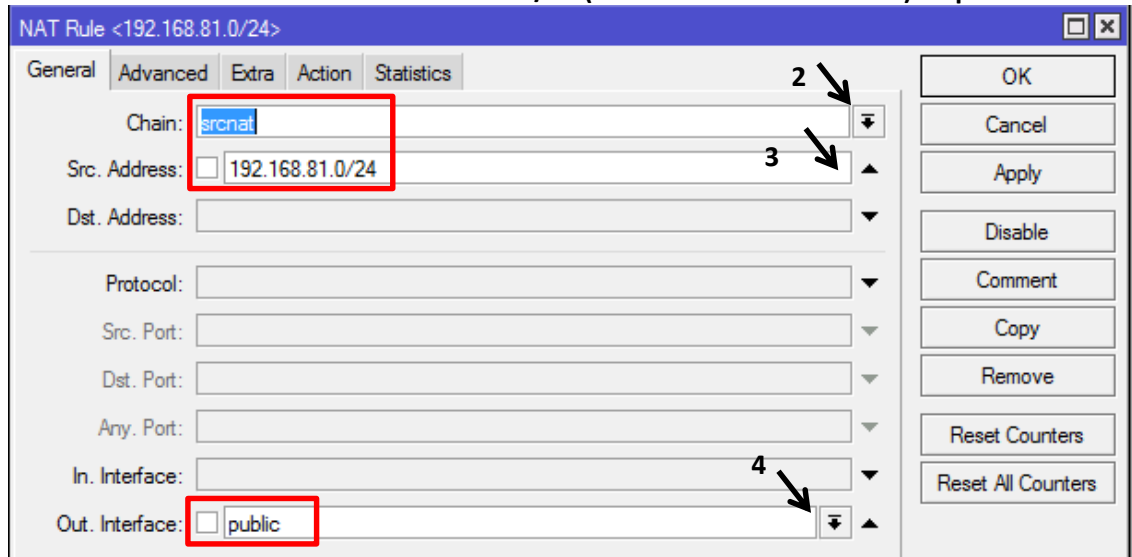


b. Akses NAT interface WLAN 1, akses time jam 7.00 s/d 19.00 wib

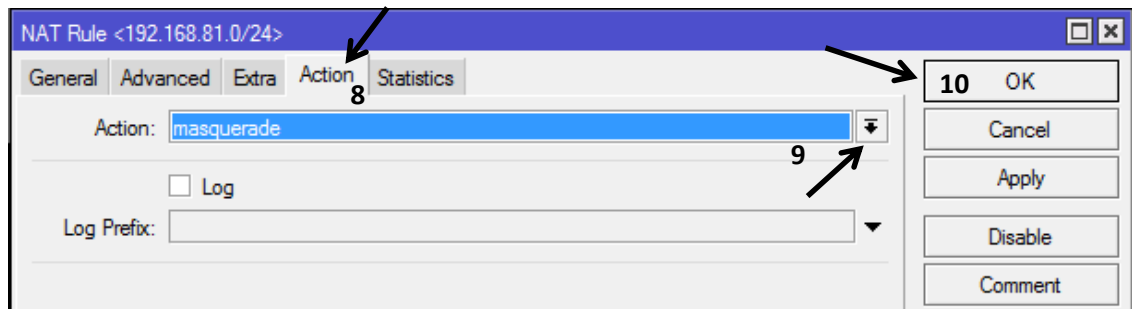
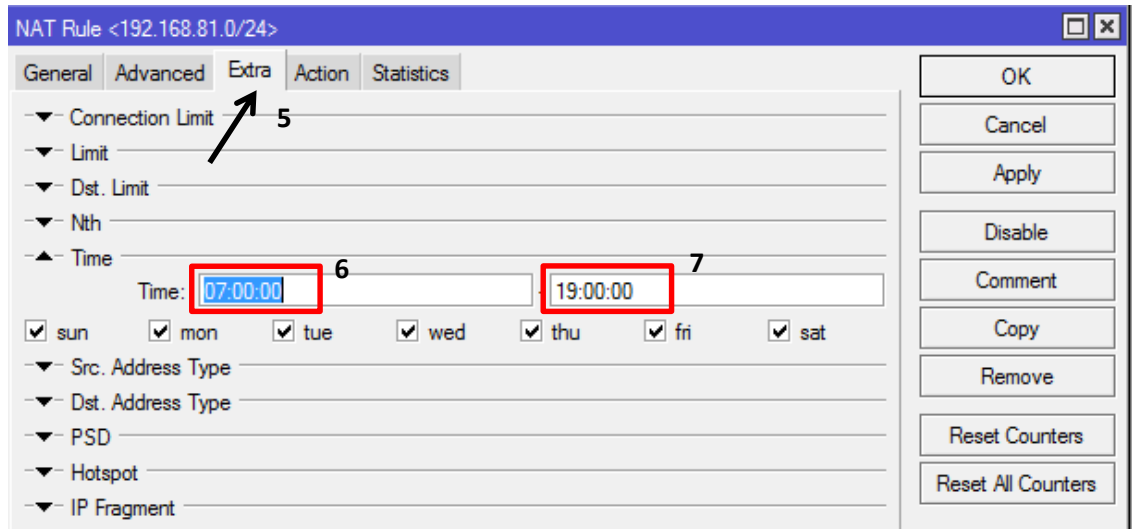


Tambahkan lagi Firewall NAT baru untuk Wlan 1

Chain = srcnat → Src.Address = 192.168.Y.0/24 (network interfaces wlan1) → public



Tab Extra → Time = 07:00:00 – 19:00:00



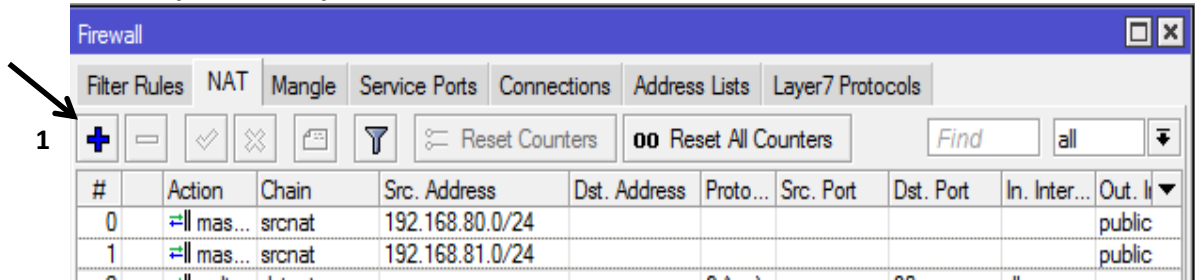
Hasil Firewall NAT Akses Internet

Firewall

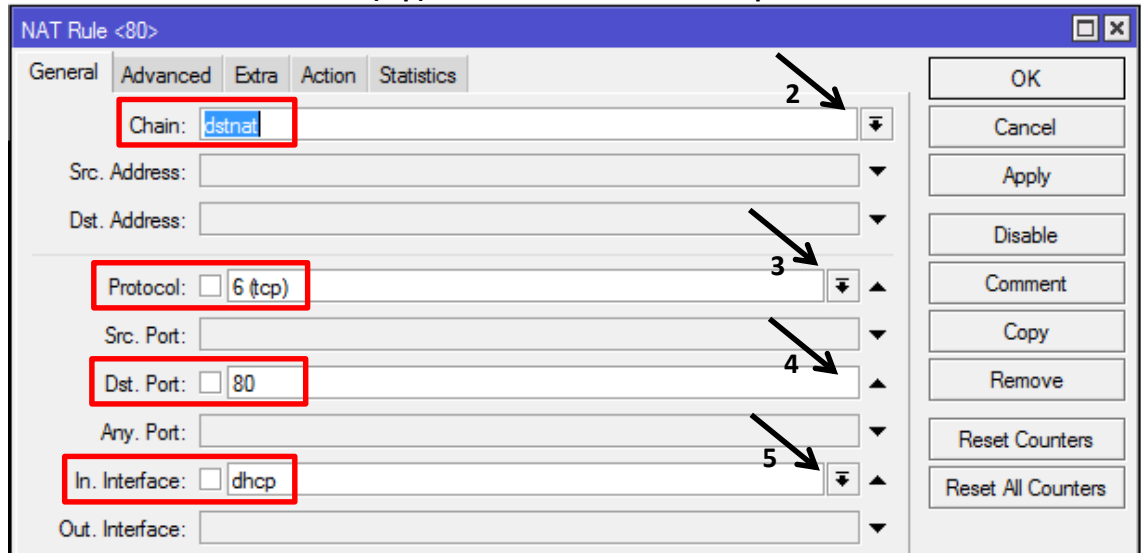
Filter Rules NAT Mangle Service Ports Connections Address Lists Layer7 Protocols

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. I
0	mas...	srcnat	192.168.80.0/24						public
1	mas...	srcnat	192.168.81.0/24						public

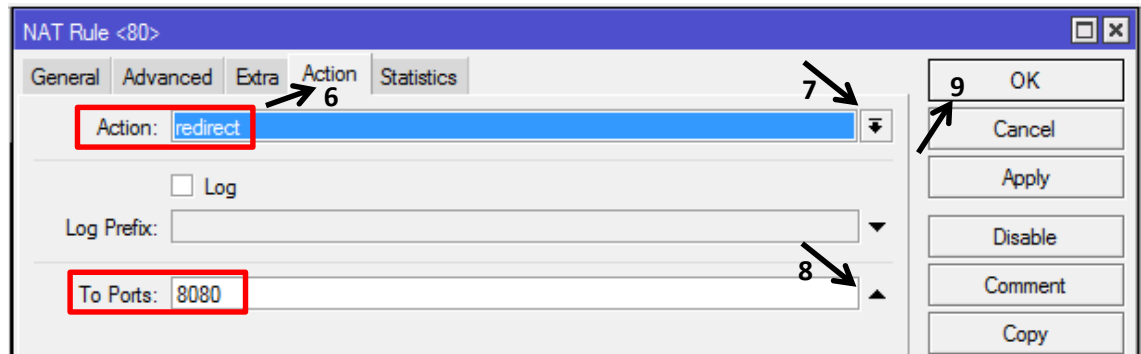
8. Hasil Firewall NAT Transparent Proxy
 a. Transparent Proxy Interface DHCP



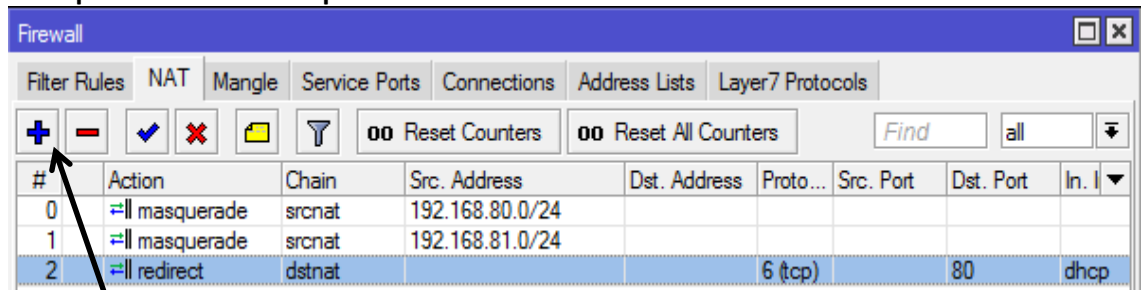
Chain = dstnat → Protocol = 6(tcp) → 80 → In-interface = dhcp



Action = redirect → To Ports = 8080

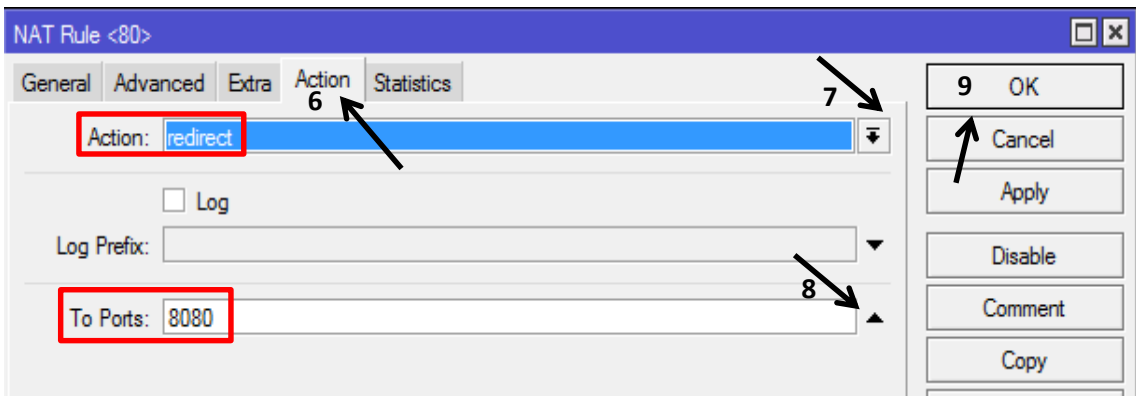
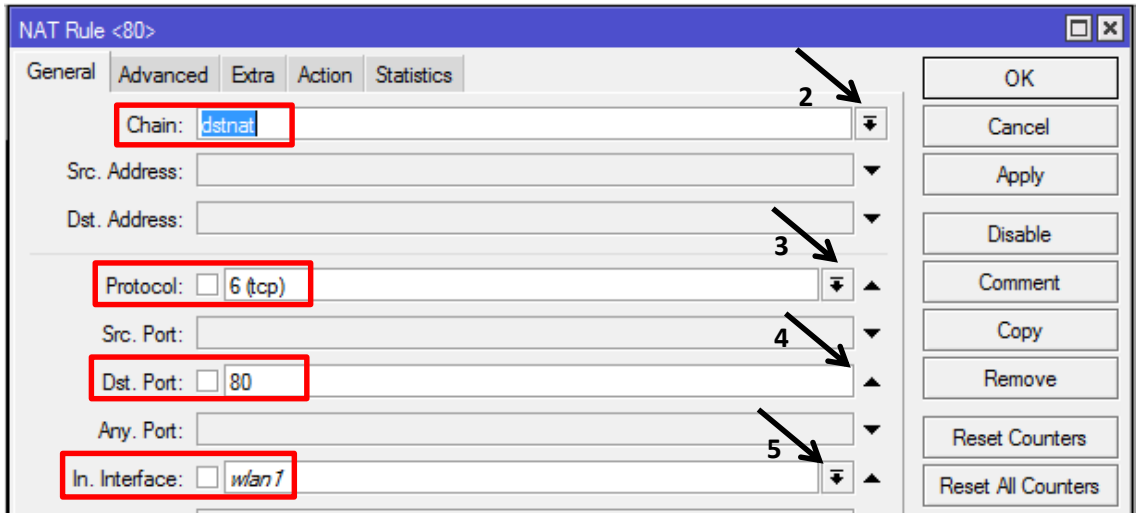


Transparent interface dhcp telah diaktifkan



Tambahkan lagi Firewall baru untuk Wlan 1

b. Transparent Proxy Interface WLAN-1



Hasil konfigurasi firewall NAT akses Internet dan Transparent Proxy

Firewall

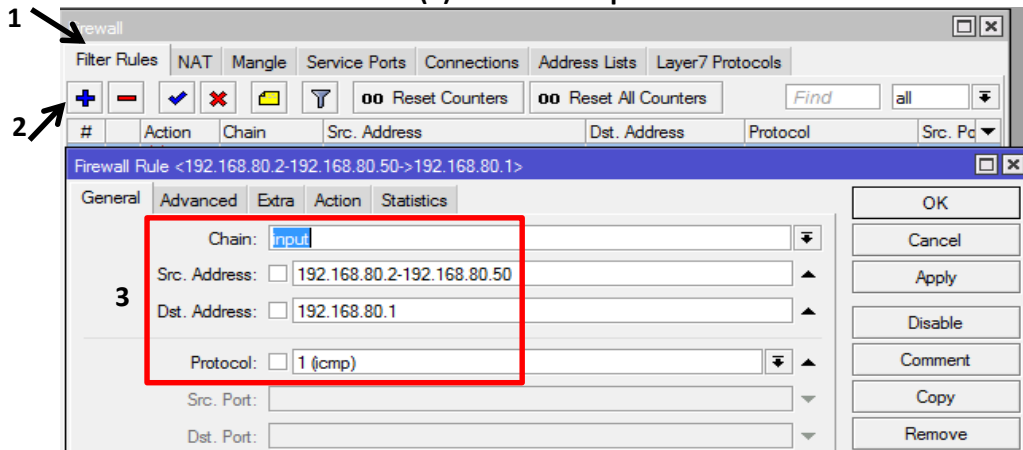
Filter Rules NAT Mangle Service Ports Connections Address Lists Layer7 Protocols

Buttons: +, -, ✓, ✗, [], [], Reset Counters, 00 Reset All Counters, Find, all, []

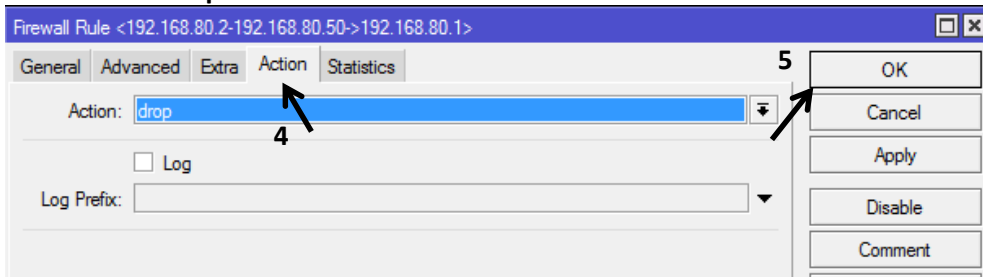
#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. I
0	mas...	srcnat	192.168.80.0/24						public
1	mas...	srcnat	192.168.81.0/24						public
2	redir...	dstnat			6 (tcp)		80	dhcp	
3	redir...	dstnat			6 (tcp)		80	wlan1	

9. Konfigurasi Block Ping dari Client Kabel

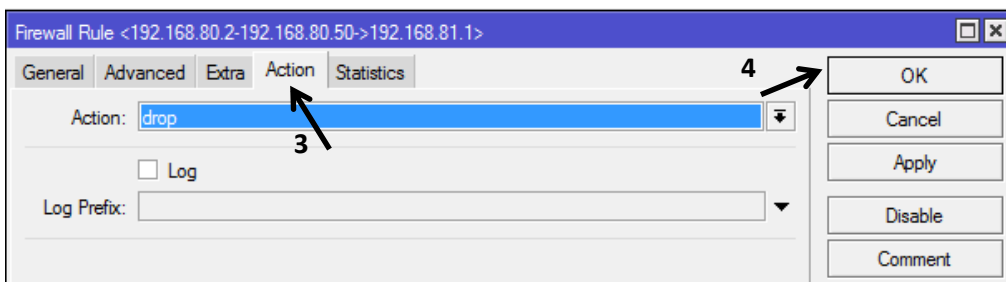
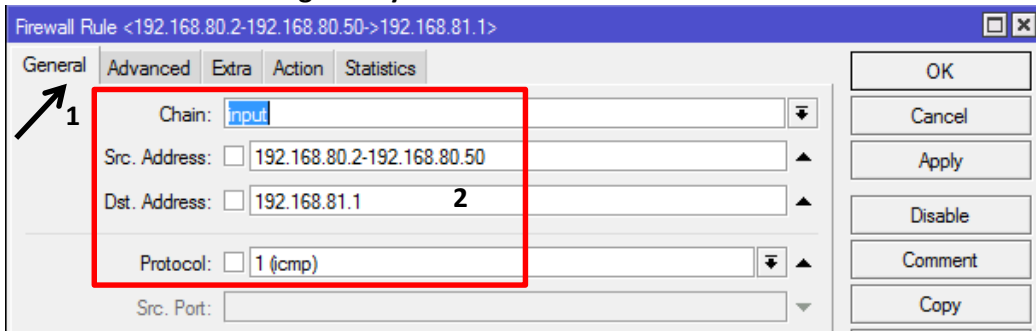
Tab menu Filter Rules → add (+) → chain = input → src = X.2 – X.50 → dst =192.168.X.1



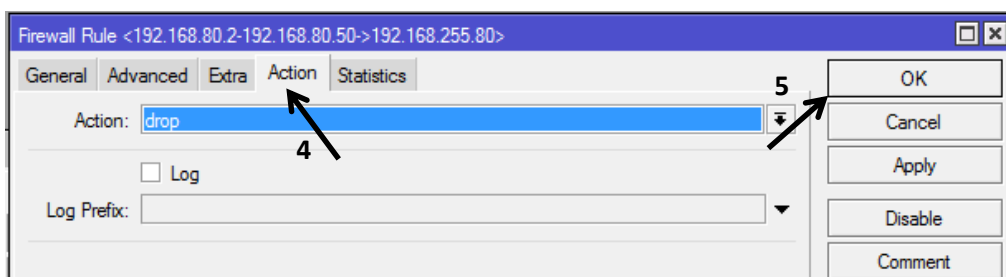
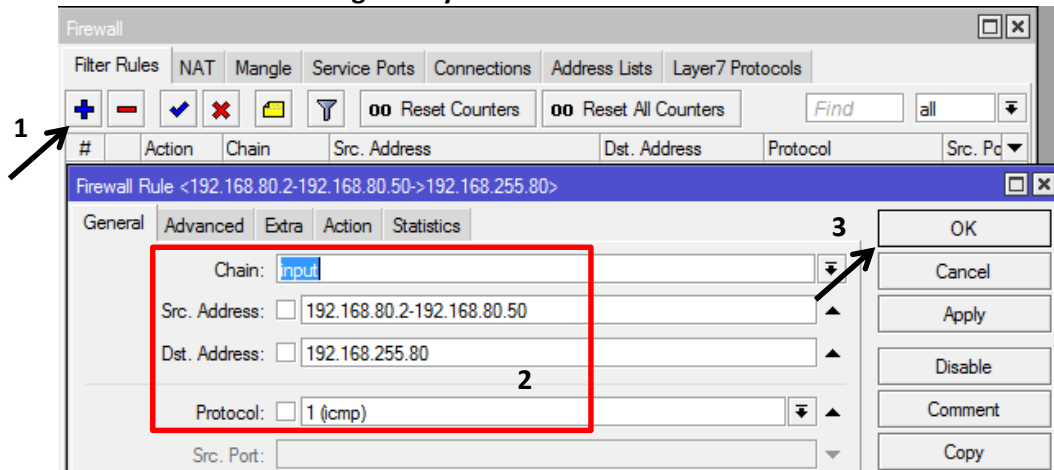
Tab Action = drop



Tambahkan filter untuk gateway 192.168.Y.1



Tambahkan filter untuk gateway 192.168.110.X



Hasil konfigurasi filter access block ping

#	Action	Chain	Src. Address	Dst. Address	Protocol	Src. Pc
0	✗ drop	input	192.168.80.2-192.168.80.50	192.168.80.1	1 (icmp)	
1	✗ drop	input	192.168.80.2-192.168.80.50	192.168.255.80	1 (icmp)	
2	✗ drop	input	192.168.80.2-192.168.80.50	192.168.81.1	1 (icmp)	

10. Konfigurasi Logging Access

Pada menu Filter Rules tambahkan (+) filter log → Chan

#	Action	Chain	Src. Address	Dst. Address	Protocol	Src. Pc
0	✗ drop	input	192.168.80.2-192.168.80.50	192.168.80.1	1 (icmp)	
1	✗ drop	input	192.168.80.2-192.168.80.50	192.168.255.80	1 (icmp)	
2	✗ drop	input	192.168.80.2-192.168.80.50	192.168.81.1	1 (icmp)	

Tab Action = Log

Hasil konfigurasi Filter untuk block ping dan logging

#	Action	Chain	Src. Address	Dst. Address	Protocol	Src. Pc
0	✗ drop	input	192.168.80.2-192.168.80.50	192.168.80.1	1 (icmp)	
1	✗ drop	input	192.168.80.2-192.168.80.50	192.168.255.80	1 (icmp)	
2	✗ drop	input	192.168.80.2-192.168.80.50	192.168.81.1	1 (icmp)	
3	☐ log	input				

11. Konfigurasi Web-Proxy Mikrotik, Block site, file dan konten

- a. Pada Menu IP ---> Web Proxy → Isikan chace admin = namapeserta@gmail.com

The screenshot shows the Mikrotik WinBox interface. On the left sidebar, the 'IP' menu is highlighted with a red box and labeled '1'. An arrow points from 'IP' to the 'Web Proxy' option in the main menu, which is also highlighted with a red box and labeled '2'. The 'Web Proxy Settings' window is open, showing the 'General' tab. The 'Enabled' checkbox is checked. The 'Port' is set to '8080' and is highlighted with a red box and labeled '3'. The 'Cache Administrator' is set to 'dodiasni@gmail.com' and is highlighted with a red box and labeled '4'. The 'Cache On Disk' checkbox is checked and highlighted with a red box and labeled '5'. The 'Access' button is highlighted with a red box and labeled '6'. Other settings include 'Max. Client Connections: 600', 'Max. Server Connections: 600', 'Max Fresh Time: 3d 00:00:00', 'Cache Hit DSCP (TOS): 4', and 'Cache Path: web-proxy'.

- b. Redirect website www.mikrotik.com ke www.bsnp-indonesia.org, src = 192.168.X.0/24

The screenshot shows the 'Web Proxy Access' window. A red box highlights the '+' button, labeled '1'. Below it, the 'Web Proxy Rule <192.168.80.0/24>' window is open. The 'Src. Address' is set to '192.168.80.0/24' and is highlighted with a red box and labeled '2'. The 'Dst. Host' is set to 'www.mikrotik.com' and is highlighted with a red box and labeled '3'. The 'Action' is set to 'deny' and is highlighted with a red box and labeled '4'. The 'Redirect To' is set to 'www.bsnp-indonesia.org' and is highlighted with a red box and labeled '5'. The 'Hits' counter shows '3'. The 'OK' button is highlighted with a red box and labeled '5'.

c. Block Website www.linux.or.id, src-address = 192.168.Y.0/24

1

#	Src. Address	Dst. Address	Dst. Port	Dst. Host	Path
0	192.168.80.0/24			www.mikrotik...	

Web Proxy Rule <192.168.81.0/24>

Src. Address: 192.168.81.0/24 2

Dst. Address:

Dst. Port:

Local Port:

Dst. Host: www.linux.or.id 3

Path:

Method:

Action: deny 4

Redirect To:

Hits: 0

5 OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

d. Tambahkan block file .mp3 pada jalur 192.168.Y.1

1

#	Src. Address	Dst. Address	Dst. Port	Dst. Host	Path
0	192.168.80.0/24			www.mikrotik...	
1	192.168.81.0/24			www.linux.or.id	

Web Proxy Rule <192.168.81.0/24>

Src. Address: 192.168.81.0/24 2

Dst. Address:

Dst. Port:

Local Port:

Dst. Host:

Path: *.mp3* 3

Method:

Action: deny 4

Redirect To:

Hits: 0

5 OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

e. Tambahkan block file .mkv pada jalur 192.168.Y.1

1

#	Src. Address	Dst. Address	Dst. Port	Dst. Host	Path
0	192.168.80.0/24			www.mikrotik...	
1	192.168.81.0/24			www.linux.or.id	
2	192.168.81.0/24				*.mp3*

Web Proxy Rule <192.168.81.0/24>

Src. Address: 192.168.81.0/24 2

Dst. Address:

Dst. Port:

Local Port:

Dst. Host:

Path: *.mkv* 3

Method:

Action: deny 4

Redirect To:

Hits: 0

5 OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

f. Tambahkan block akses content "mikrotik" pada jalur 192.168.Y.1

Web Proxy Access

#	Src. Address	Dst. Address	Dst. Port	Dst. Host	Path
0	192.168.80.0/24			www.mikrotik.com	
1	192.168.81.0/24			www.linux.or.id	
2	192.168.81.0/24				*.mp3*
3	192.168.81.0/24				*.mkv*

Web Proxy Rule <192.168.81.0/24>

Src. Address: 192.168.81.0/24

Dst. Address:

Dst. Port:

Local Port:

Dst. Host:

Path: *.mikrotik*

Method:

Action: deny

Redirect To:

Hits: 12

g. Hasil Konfigurasi block website, file dan content

Web Proxy Access

#	Src. Address	Dst. Address	Dst. Port	Dst. Host	Path	Method	Action
0	192.168.80.0/24			www.mikrotik.com			deny
1	192.168.81.0/24			www.linux.or.id			deny
2	192.168.81.0/24				*.mp3*		deny
3	192.168.81.0/24				*.mkv*		deny
4	192.168.81.0/24				*mikrotik*		deny

h. Terakhir close web proxy access → OK

Web Proxy Settings

General Status Lookups Inserts Refreshes

Enabled

Src. Address: ::

Port: 8080

Anonymous

Parent Proxy:

Parent Proxy Port:

OK

Cancel

Apply

Clear Cache

Reset HTML

Access

Cache

12. Konfigurasi NTP – Server, System → Clock → Pilih Asia/Jakarta → Apply → OK

System

Clock

Time Manual Time Zone

Time: 03:34:14

Date: Mar/13/2019

Time Zone Autodetect

Time Zone Name: Asia/Jakarta

GMT Offset: +00:00

DST Active

OK

Cancel

Apply

Time Manual Time Zone

Time: 10:34:43

Date: Mar/13/2019

Time Zone Autodetect

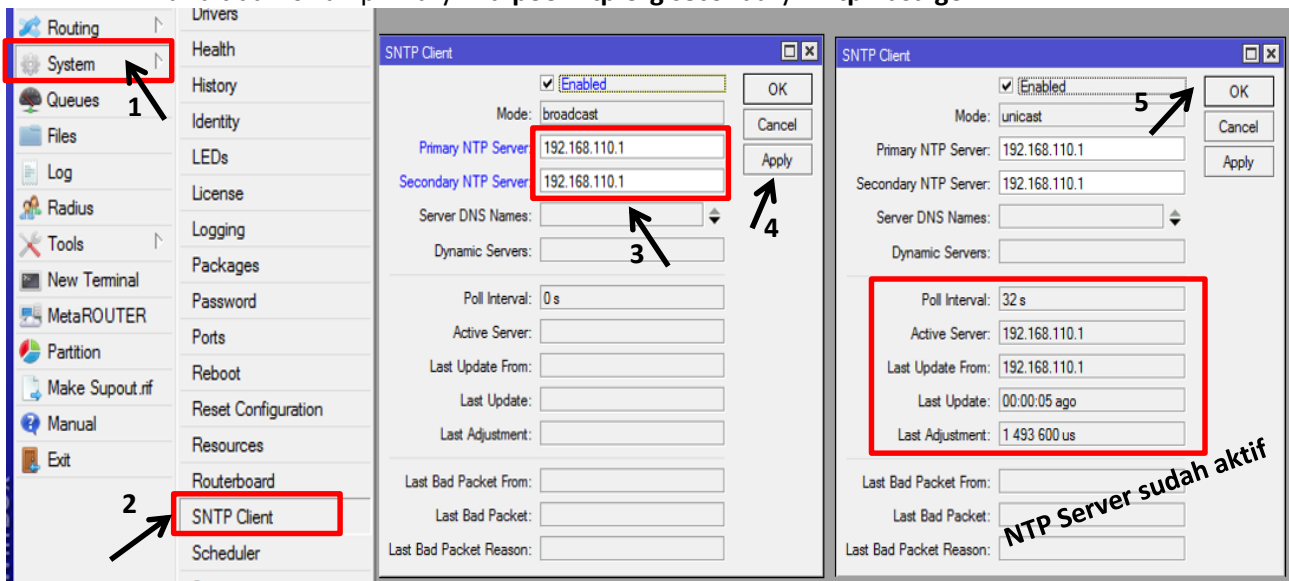
Time Zone Name: Asia/Jakarta

GMT Offset: +07:00

DST Active

Waktu telah disinkron

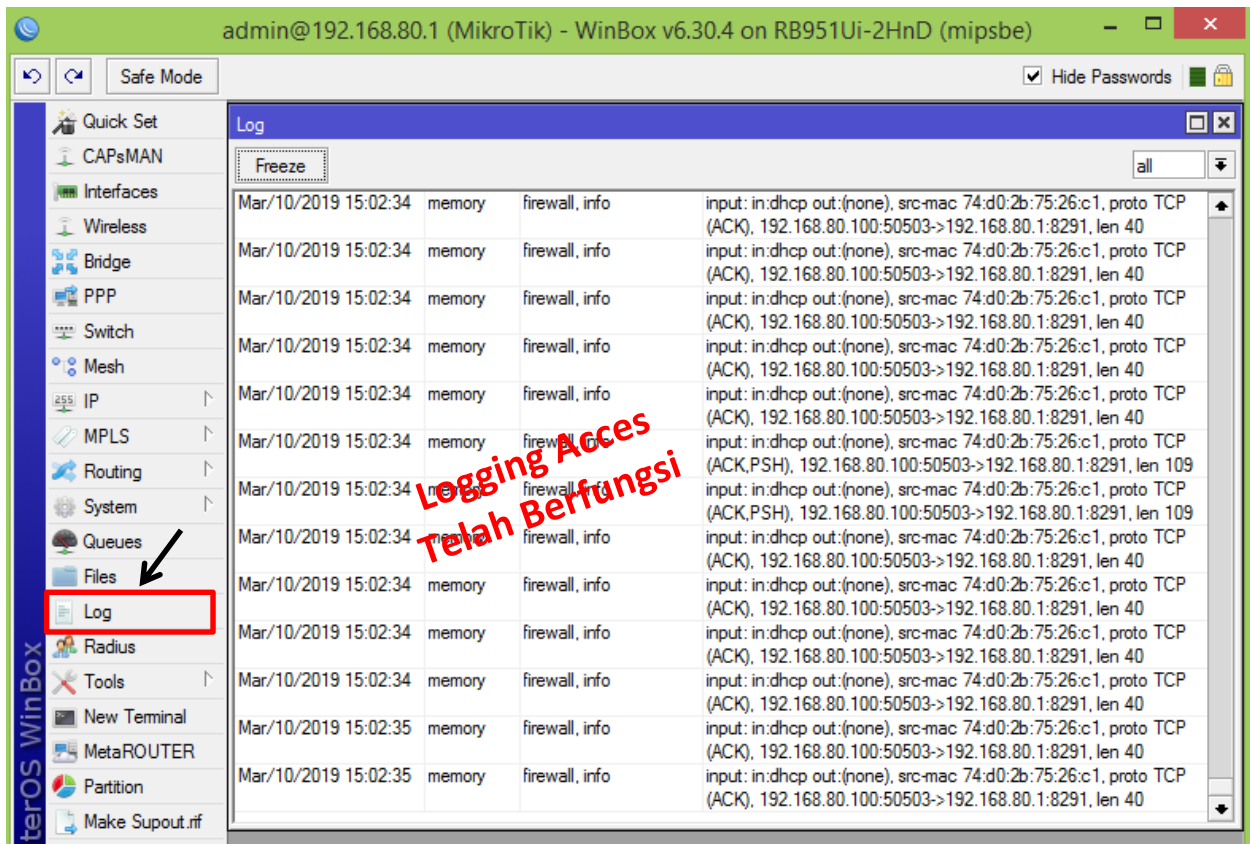
Lanjut aktifkan NTP Server → **System** → **SNTP Client** → Gunakan **IP Gateway 192.168.110.1** pada primary dan secondary, karena router gateway internet sudah ada NTP Server.
 “Jika tidak isikan primary = **id.pool.ntp.org** secondary = **ntp.nasa.gov**”



C. TAHAPAN PENGUJIAN HASIL KONFIGURASI

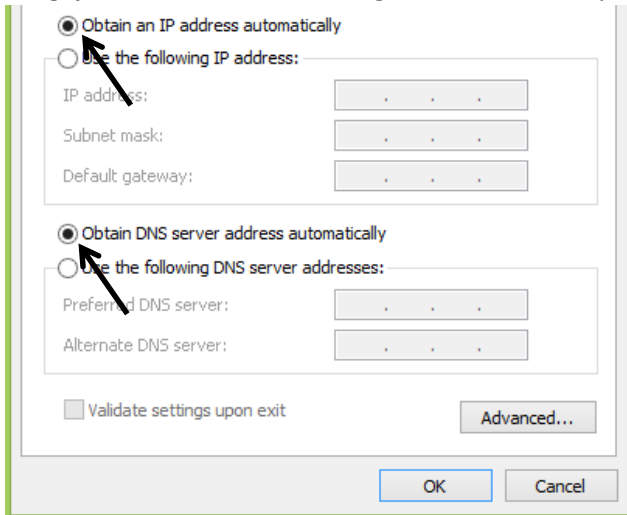
PENGUJIAN JALUR KABEL – PORT DHCP

1. Pengujian Logging Mikrotik, Klik menu **Log** pada Winbox

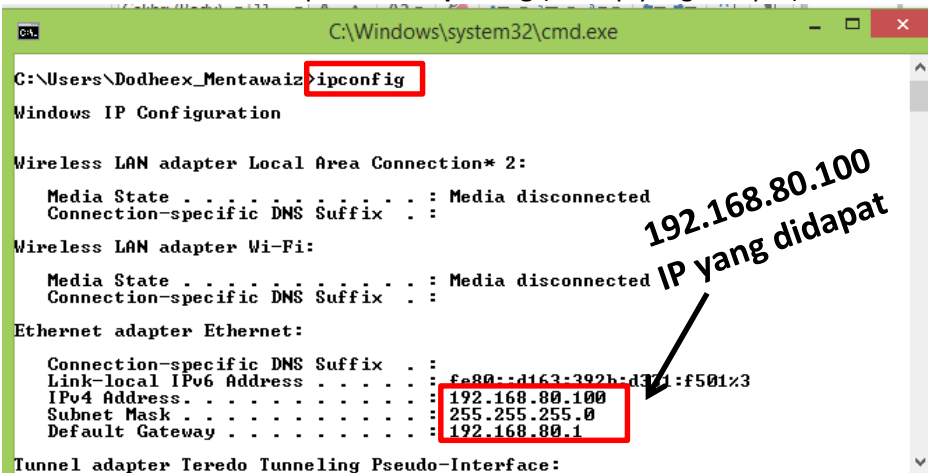


2. Pengujian Izin Akses dan Block Ping

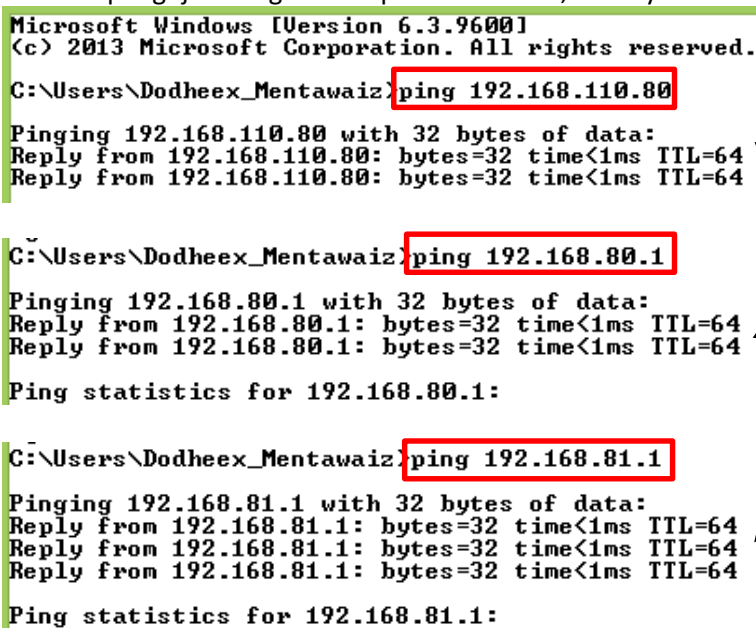
- a. Pengujian IP DHCP Client, konfigurasi IP Client pada secara automaticly



- b. Jalankan Command Prompt → ketik **ipconfig** (lihat ip yang didapat)



- c. Jika IP yang didapat client besar dari 192.168.X.50, berarti client diizinkan untuk melakukan akses ping menuju IP pada setiap Port Mikrotik.
d. Lakukan pengujian Ping ke setiap Port Mikrotik, hasilnya harus TTL



- e. Pengujian Block Akses Ping, Isikan IP Client antara Range **192.168.X.2 – 192.168.X.50**

- f. Lakukan pengujian Ping ke setiap Port Mikrotik, hasilnya haruslah **Request Time Out (RTO)**

```
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Dodheex_Mentawaiz>ping 192.168.110.80

Pinging 192.168.110.80 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.

C:\Users\Dodheex_Mentawaiz>ping 192.168.80.1

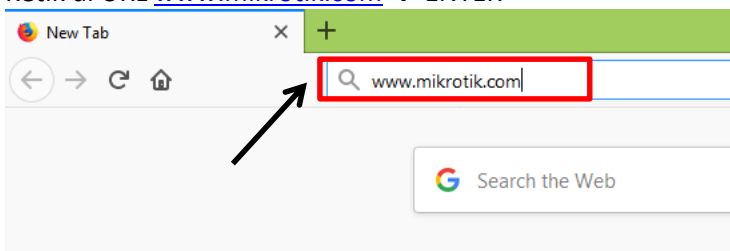
Pinging 192.168.80.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.

C:\Users\Dodheex_Mentawaiz>ping 192.168.81.1

Pinging 192.168.81.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
```

Ping ke setiap Port
RTO

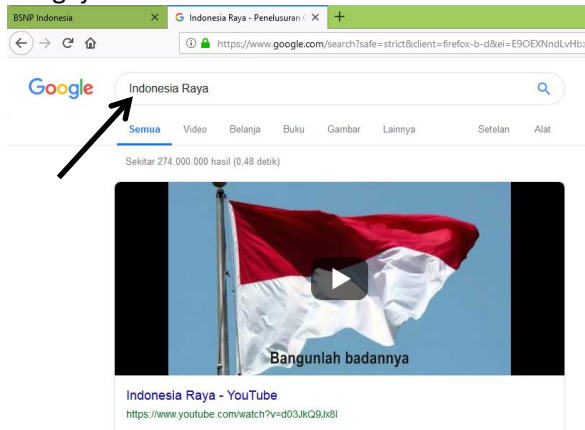
3. Pengujian block website www.mikrotik.com, di redirect ke www.bsnp-indonesia.org
Ketik di URL www.mikrotik.com → ENTER



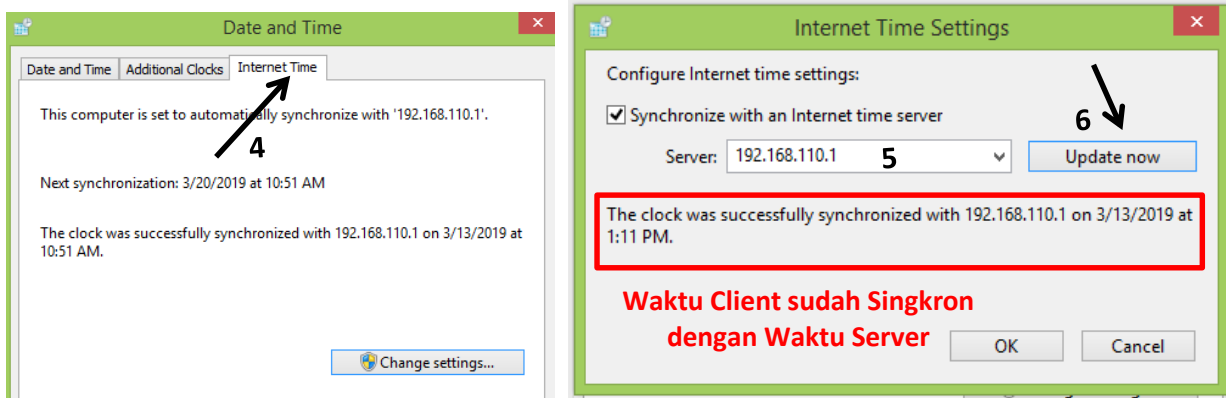
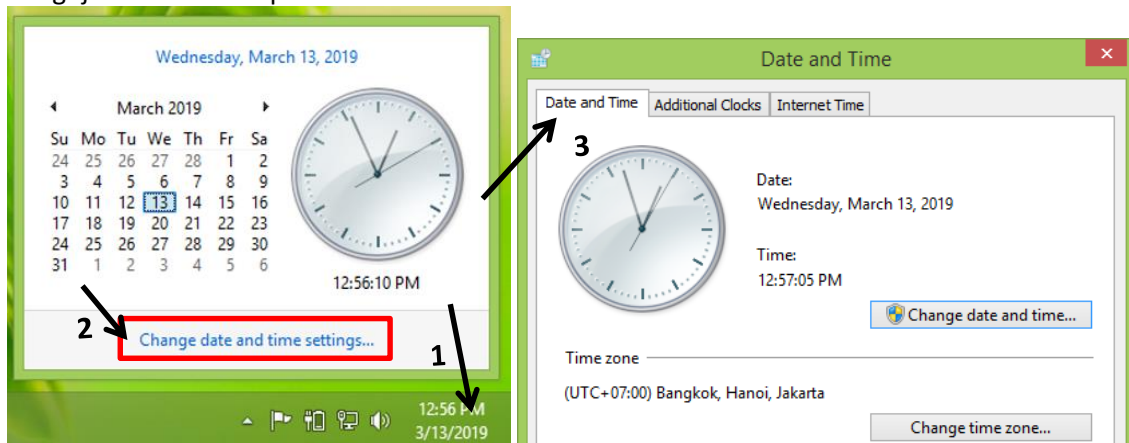
Akses web **mikrotik.com** dialihkan oleh router ke **bsnp-indonesia.org**



4. Pengujian akses Internet



5. Pengujian NTP Server pada Client



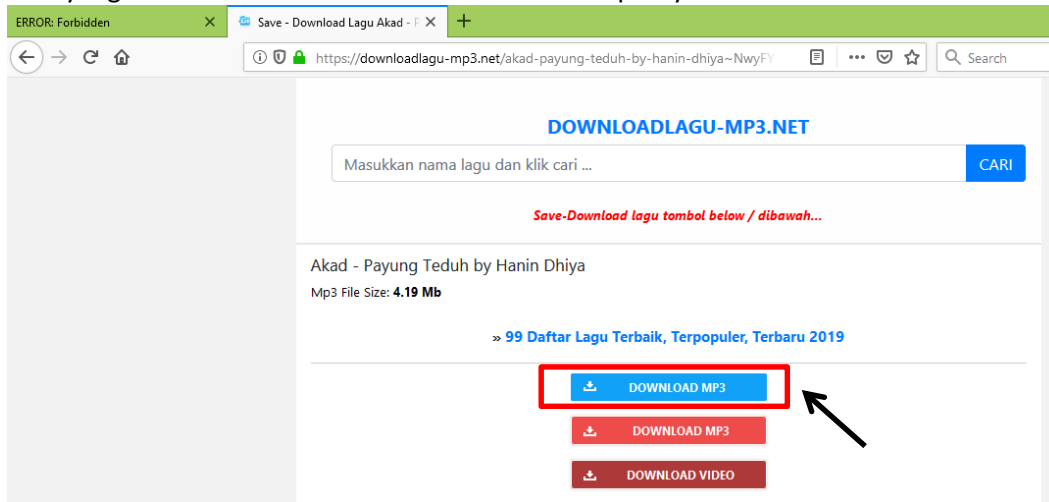
PENGUJIAN JALUR WIRELESS – PORT WLAN 1

1. Pengujian Block Website www.linux.or.id

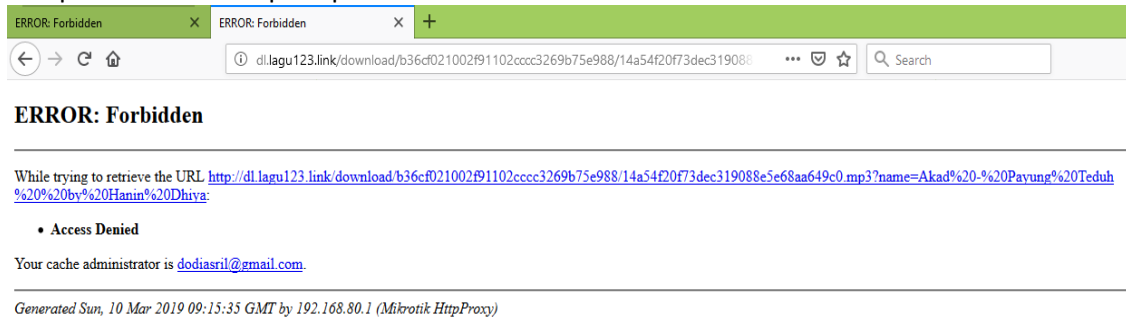


Generated Sun, 10 Mar 2019 09:14:06 GMT by 192.168.80.1 (Mikrotik HttpProxy)

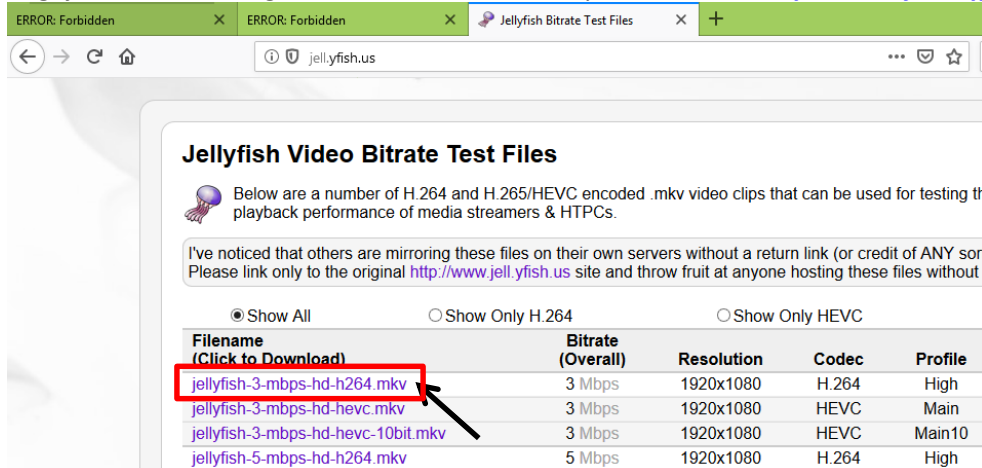
2. Pegujian Blok file dengan ekstension .mp3, ketik pada url link = <https://bit.ly/2BQtzxY> (link disediakan, karena tidak semua website yang ekstensi .mp3 bisa di-block) link ini merupakan salah satu yang bisa diblock oleh mikrotik file ekstensi .mp3-nya.



Tampilan block file .mp3 seperti dibawah ini.



3. Pegujian Blok file dengan ekstension .mkv, ketik pada url link = <https://bit.ly/2NqyHNK>



Tampilan block file .mkv seperti dibawah ini.



4. Pengujian blok content “mikrotik”. Lakukan search pada google seperti contoh dibawah.

Salah satu web yang bisa ter-blok content Mikrotik-nya

Tampilan website/blog yang ter-blok konten “mikrotik”

ERROR: Forbidden

While trying to retrieve the URL <http://salmantkj48.blogspot.com/2015/02/pengertian-mikrotik-fungsinya.html>:

- Access Denied

Your cache administrator is dodiasril@gmail.com.

Generated Sun, 10 Mar 2019 09:18:58 GMT by 192.168.80.1 (Mikrotik HttpProxy)

KONFIGURASI MIKROTIK MENGGUNAKAN CLI / TERMINAL

1. Reset Mikrotik
system reset-configuration no-defaults=yes
2. Nama Interface
interface set ether1 name=public
interface set ether1 name=dhcp
3. Set Wireless
interface wireless enable 0
interface wireless set 0 mode=ap-bridge ssid>Nama_Peserta@Proxy
4. IP Address
ip address add address=192.168.110.X/24 interface=public
ip address add address=192.168.X.1/24 interface=dcp
ip address add address=192.168.Y.1/24 interface=wlan1
5. Routing
ip route add dst-address=0.0.0.0/0 gateway=192.168.110.1

6. DNS Server
ip dns set servers=192.168.110.1,8.8.8.8 allow-remote-request=yes

7. DHCP Server – Interfaces DHCP
ip dhcp-server setup
Select interface to run DHCP server on
dhcp server interface: ***dhcp***
Select network for DHCP addresses
dhcp address space: ***192.168.X.0/24***
Select gateway for given network
gateway for dhcp network: ***192.168.X.1***
Select pool of ip addresses given out by DHCP server
addresses to give out: ***192.168.X.2-192.168.X.100***
Select DNS servers
dns servers: 192.168.110.1,8.8.8.8
Select lease time
lease time: ***10m***

8. DHCP Server – Interfaces WLAN1
ip dhcp-server setup
Select interface to run DHCP server on
dhcp server interface: ***wlan1***
Select network for DHCP addresses
dhcp address space: ***192.168.Y.0/24***
Select gateway for given network
gateway for dhcp network: ***192.168.Y.1***
Select pool of ip addresses given out by DHCP server
addresses to give out: ***192.168.Y.2-192.168.Y.100***
Select DNS servers
dns servers: 192.168.110.1,8.8.8.8
Select lease time
lease time: ***10m***

9. NAT Gateway Internet – Port DHCP
ip firewall nat add chain=srcnat src-address=192.168.X.0/24 out-interface=public action=masquerade

10. NAT Gateway Internet – Port WLAN1
ip firewall nat add chain=srcnat src-address=192.168.Y.0/24 out-interface=public time=7h-19h,sun,mon,tue,wed,thu,fri,sat action=masquerade

11. Transparent Proxy – Port DHCP
ip firewall nat add chain=dstnat protocol=tcp dst-port=80 in-interface=dhcp action=redirect to-ports=8080

12. Transparent Proxy – Port WLAN1
ip firewall nat add chain=dstnat protocol=tcp dst-port=80 in-interface=wlan1 action=redirect to-ports=8080

13. Block Access Ping

```
ip firewall filter add chain=input src-address=192.168.X.2-192.168.X.100  
dst-address=192.168.110.X protocol=icmp action=drop
```

```
ip firewall filter add chain=input src-address=192.168.X.2-192.168.X.100  
dst-address=192.168.X.1 protocol=icmp action=drop
```

```
ip firewall filter add chain=input src-address=192.168.X.2-192.168.X.100  
dst-address=192.168.Y.1 protocol=icmp action=drop
```

14. Logging

```
ip firewall filter add chain=input log=yes log-prefix=yes
```

15. Web Proxy

```
ip proxy set enabled=yes port=8080 cache-administrator=namapeserta@smkn1.sch.id  
cache-on-disk=yes
```

16. Proxy Access

```
ip proxy access add src-address=192.168.X.0/24 dst-host=www.mikrotik.com  
redirect-to=www.bsnp-indonesia.org action=deny
```

```
ip proxy access add src-address=192.168.Y.0/24 dst-host=www.linux.or.id action=deny
```

```
ip proxy access add src-address=192.168.Y.0/24 path=*.mp3* action=deny
```

```
ip proxy access add src-address=192.168.Y.0/24 path=*.mkv* action=deny
```

```
ip proxy access add src-address=192.168.Y.0/24 path=*mikrotik* action=deny
```

17. Set Clock/Time

```
system clock set time-zone-autodetect=yes time-zone-name=Asia/Jakarta
```

18. NTP Server

```
system ntp client set enabled=yes primary-ntp=192.168.110.1 secondary-ntp=192.168.110.1
```

***** SELESAI *****